

Era Aviation, Inc. PROCESS SPECIFICATION

ERA AVIATION, INC.

GULF COAST DIVISION LAKE CHARLES, LOUISIANA

PROCESS SPECIFICATION NO. 2004 FABRICATION OF FIRE RETARDANT COMPOSITE LAMINATE

TYPES I thru VI

Approved By:

Quality Control: 9

phy Date: 8-1-96

Engineering:

date 23 AUG 96	ENGINEERING ORDER	E.O. No. A-1	SHT. 1_0F_1	
BY D. MURPHY	TITLE	DWG. AFFECTED NA		
APPROVED BY	PROCESS SPECIFICATION 2004	ENTERED ON COMPUTER BY: DATE:		

REASON FOR CHANGE: TO CORRECT DESCRIPTION

CROSS OUT THE WORD "MOLD" ON STEP 10 OF TYPE I AND INSERT THE WORD "PART".

ACCOMPLISHED THE SAME CHANGE FOR THE FOLLOWING TYPE LAYUPS:

TYPE II SHANGE STEP 12 TYPE III CHANGE STEP 14 TYPE IV CHANGE STEP 16 TYPE V CHANGE STEP 18 TYPE VI CHANGE STEP 20

ADD CHANGE TO UNINCORPORATED LIST	DATE	BY
ADD CHANGE TO MASTER DRAWING LIST	DATE	BY
ADD CHANGE TO COMPUTER DATA BASE	DATE	BY

ERA PS	004	REV	IR	DATE	7-30-96		
LOG OF REVISIONS							
REVISION	DATE	DESCRIPT	ION A	APPROVED D	DATE		
IR	7/30/96	INITIAL RELE		8/6			
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ERA PS	2004	REV	IR	DATE	7-30-96
Scope	laminate that Process Spe- strand mat a respects. Ea fiberglass ma	ation outlines the re t meets the minimu cification includes a and fiberglass edge ach type, I-VI will at than the preced Il include the fire re the aircraft.	im fire retardant r multiple layered c e glass (ECDE). provide one add ing type.	equirements of Foundations of fiber The selections a ditional layer of E	AR 29.853. This erglass chopped re identical in all ECDE glass and
Conformation	This specifica	ation does not cor	nform to any exis	ting government	specification.
Conflicts	In the event drawing(s) sh	of a conflict with entall govern.	engineering draw	ving(s) and this s	specification, the

ERA PS2004	REV IR	DATE 7-30-96
	MATERIALS	
MATERIAL	<u>NAME</u>	MANUFACTURER
Resin	Derakane 8084	Dow Chemical Midland, MI
Promoter	Cobalt Napthenate	AKZO Chemie New Brunswick, NJ
Accelerator	Dimethylaniline	Buffalo Colors West Paterson, NJ
MEKP Catalyst	Hi Point 90	Witco Chemical Richmond, CA
	Lupersol DHD 9	Lucidol Chemical Buffalo, NY
Mold Release	PVA	Rexco Carpenteria, CA
	Frekote 700	Dexter Corp. Seabrook, NH
	Ceara Mold Release Wax	Ceara Products, Inc. Denver, CO
UV Inhibitor	UV-9	Industrial Chemicals Atlanta, GA
Pigment	CoPlas Pigment	CoPlas Fort Smith, AR
	Spartan Pigment	Spartan Pigments Houston, TX
Gel Coat	Gel Coat	CoPlas Inc. Ft. Smith, AR
3/4 oz. Type "E" Glass Mat (Chopped Strand Mat)	M113 - 3/4 oz. or M127 - 3/4 oz.	Certainteed Wichita Falls, TX
1 1/2 oz. Type "E" Glass Mat	MPM - 1 1/2 oz. or M127 - 1 1/2 oz.	PPG Industries Shelby, NC

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	MATERIALS	
MATERIAL	NAME	MANUFACTURER
8.9 oz. Type "ECDE" glass	7781	Burlington Fibers Altavista, VA
		Hexcel Corp. Pleasanton, CA
Fire Retardant Additive	Nyacol APE-1540	PQ Corp. Ashland, MA
Fire Retardant Additive	Decabromodiphenyl Oxide	Ethyl Corp. Magnolia, AR
Grinding Discs	36 Grit Type D 60 Grit Type C 80 Grit Type C	3M Corp. St. Paul, MN
Mold Surface	Black Tooling Gel	Glidden

E	ERA PS REV IR DAT	TE <u>7-30-96</u>
	Laminate Manufacture - Type I . 07	10 AVG
1.	Inspect mold for defects (i.e. chips, cracks, crazing, etc). <u>Do Not defect is corrected.</u>	t proceed until any
2.	Apply mold release agent(s) according to manufacturer's instructions.	
3.	Apply one layer of 3/4 oz. chopped strand mat on mold surfaces. Satis 8084 resin containing 12% by weight Decabromodiphenyl Oxide, 7.5% APE 1540, UV inhibitor and pigment. Deaerate with serrated rollers.	
4.	Apply one layer of ECDE glass cloth. Saturate with Derakane 8084 reby weight Decabromodiphenyl Oxide, 7.5% by weight Nyacol APE 154 pigment. Deaerate with serrated rollers.	_
5.	Apply 2nd layer of 3/4 oz. chopped strand mat. Saturate with Derakar containing 12% by weight Decabromodiphenyl Oxide, 7.5% by weight UV inhibitor and pigment. Deaerate with serrated rollers.	
6.	Apply 2nd layer of ECDE glass cloth. Saturate with Derakane 8084 reby weight Decabromodiphenyl Oxide, 7.5% by weight Nyacol APE 154 pigment. Deaerate with serrated rollers.	_
7.	Apply 3rd layer of 3/4 oz. chopped strand mat. Saturate with Derakan containing 12% by weight Decabromodiphenyl Oxide, 7.5% by weight UV inhibitor and pigment. Deaerate with serrated rollers.	
8.	Allow to cure for 4 - 6 hours. Separate from mold and trim to size.	
9.	Sand part with 40 grit sandpaper to smooth out mold marks and expose be present.	ose any pits that might
10.	Apply gel-coat containing 12% by weight Decabromodiphenyl Oxide, Nyacol APE 1540, pigment and UV inhibitor onto moldiusing a spray of thickness of 10 mils, minimum thickness of 6 mils to fill exposed pits. wet or dry sandpaper.	gun for a nominal

ERA	PS	2004	REV	IR	DATE	7-30-96
 			Laminate Manu	ufacture - Type II	.10	D AVG
1.	Inspect medefect is contact.		s (i.e. chips, cracł	ks, crazing, etc). <u>Do Not</u> pı	oceed until any
2.	Apply mol	d release age	ent(s) according to	o manufacturer's i	nstructions.	
3.	8084 resir	n containing 1	12% by weight De	nd mat on mold su cabromodiphenyl caerate with serra	Oxide, 7.5% b	ate with Derakan by weight Nyacol
4.	by weight	Decabromod	DE glass cloth. Sa liphenyl Oxide, 7.9 h serrated rollers.	aturate with Derak 5% by weight Nya	ane 8084 resi col APE 1540	n containing 12% , UV inhibitor and
5.	containing	12% by weig	oz. chopped stran ght Decabromodip nt. Deaerate with	nd mat. Saturate v ohenyl Oxide, 7.59 n serrated rollers.	with Derakane % by weight N	8084 resin yacol APE 1540,
6.	by weight	Decabromod		aturate with Derak 5% by weight Nya		
7.	containing	12% by weig		d mat. Saturate wohenyl Oxide, 7.59		
8.	by weight	Decabromod		turate with Deraka 5% by weight Nya		
9.	containing	12% by weig		d mat. Saturate wohenyl Oxide, 7.59 serrated rollers.		
10.	Allow to co	ure for 4 - 6 h	nours. Separate fr	rom mold and trim	to size.	
11.	Sand part might be p		andpaper to smo	oth out mold mark	s and expose	any pits that
12.	Nyacol AF thickness	E 1540, pign	nent and UV inhib	t Decabromodiphe pitor onto in susion of 6 mils, to fill ex	ng a spray gui posed pits. F	n for a nominal

]	ERA PS _	2004	_ REV _	IR	DATE	7-30-96
			Laminate Mar	nufacture - Type III	.125	AVG
1.	Inspect r defect is	nold for defects (corrected.	i.e. chips, crac	ks, crazing, etc	.). <u>Do Not</u> proc	eed until any
2.	Apply mo	old release agent	t(s) according t	o manufacturer's ins	structions.	
3.	8084 res	in containing 129	% by weight De	nd mat on mold surf ecabromodiphenyl C eaerate with serrate	oxide, 7.5% by v	with Derakane weight Nyacol
4.	by weigh	e layer of ECDE t Decabromodiph Deaerate with s	nenyl Oxide, 7.	aturate with Deraka 5% by weight Nyac	ne 8084 resin c ol APE 1540, U	ontaining 12% V inhibitor and
5.	containin	g 12% by weight	t Decabromodiį	nd mat. Saturate wi phenyl Oxide, 7.5% n serrated rollers.	th Derakane 80 by weight Nyad	84 resin col APE 1540,
6.	by weigh	d layer of ECDE t Decabromodiph Deaerate with s	nenyl Oxide, 7.	aturate with Deraka 5% by weight Nyaco	ne 8084 resin c ol APE 1540, U	ontaining 12% V inhibitor and
7.	containin	g 12% by weight	Decabromodi	d mat. Saturate wit phenyl Oxide, 7.5% a serrated rollers.	h Derakane 808 by weight Nyac	34 resin col APE 1540,
8.	weight Do	d layer of ECDE of ecabromodiphen Deaerate with s	yl Oxide, 7.5%	aturate with Derakar by weight Nyacol A	ne 8084 resin co NPE 1540, UV ir	ontaining 12% by hhibitor and
9.	containin	g 12% by weight	Decabromodia	d mat. Saturate with ohenyl Oxide, 7.5% o serrated rollers.	h Derakane 808 by weight Nyac	34 resin col APE 1540,
10.	weight De	layer of ECDE of ecabromodiphen Deaerate with s	yl Oxide, 7.5%	turate with Derakan by weight Nyacol A	ne 8084 resin co NPE 1540, UV ir	ontaining 12% by hhibitor and
11.	containin	g 12% by weight	Decabromodin	d mat. Saturate with thenyl Oxide, 7.5% a serrated rollers.	h Derakane 808 by weight Nyac	34 resin ol APE 1540,
			ERA PROCE	SS SPECIFICATION		

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12.	Allow to	cure for 4 - 6 h	nours. Separate fro	om mold and trim	to size.	
13.	Sand pa	art with 40 grit s ent.	sandpaper to smoo	th out mold mark	s and expose a	ny pits that might
14.	thicknes	APE 1540, pigr	ing 12% by weight ment and UV inhibit iinimum thickness o	or onto mold [©] usii	ng a spray gun f posed pits. Fini	or a nominal
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Laminate Manufacture - Type IV . 150 AVG.

- 1. Inspect mold for defects (i.e. chips, cracks, crazing, etc. . . .). <u>Do Not proceed until any defect is corrected.</u>
- 2. Apply mold release agent(s) according to manufacturer's instructions.
- 3. Apply one layer of 3/4 oz. chopped strand mat on mold surfaces. Saturate with Derakane 8084 resin containing 12% by weight Decabromodiphenyl Oxide, 7.5% by weight Nyacol APE 1540, UV inhibitor and pigment. Deaerate with serrated rollers.
- 4. Apply one layer of ECDE glass cloth. Saturate with Derakane 8084 resin containing 12% by weight Decabromodiphenyl Oxide, 7.5% by weight Nyacol APE 1540, UV inhibitor and pigment. Deaerate with serrated rollers.
- 5. Apply 2nd layer of 3/4 oz. chopped strand mat. Saturate with Derakane 8084 resin containing 12% by weight Decabromodiphenyl Oxide, 7.5% by weight Nyacol APE 1540, UV inhibitor and pigment. Deaerate with serrated rollers.
- 6. Apply 2nd layer of ECDE glass cloth. Saturate with Derakane 8084 resin containing 12% by weight Decabromodiphenyl Oxide, 7.5% by weight Nyacol APE 1540, UV inhibitor and pigment. Deaerate with serrated rollers.
- 7. Apply 3rd layer of 3/4 oz. chopped strand mat. Saturate with Derakane 8084 resin containing 12% by weight Decabromodiphenyl Oxide, 7.5% by weight Nyacol APE 1540, UV inhibitor and pigment. Deaerate with serrated rollers.
- 8. Apply 3rd layer of ECDE glass cloth. Saturate with Derakane 8084 resin containing 12% by weight Decabromodiphenyl Oxide, 7.5% by weight Nyacol APE 1540, UV inhibitor and pigment. Deaerate with serrated rollers.
- 9. Apply 4th layer of 3/4 oz. chopped strand mat. Saturate with Derakane 8084 resin containing 12% by weight Decabromodiphenyl Oxide, 7.5% by weight Nyacol APE 1540, UV inhibitor and pigment. Deaerate with serrated rollers.
- 10. Apply 4th layer of ECDE glass cloth. Saturate with Derakane 8084 resin containing 12% by weight Decabromodiphenyl Oxide, 7.5% by weight Nyacol APE 1540, UV inhibitor and pigment. Deaerate with serrated rollers.
- 11. Apply 5th layer of 3/4 oz. chopped strand mat. Saturate with Derakane 8084 resin containing 12% by weight Decabromodiphenyl Oxide, 7.5% by weight Nyacol APE 1540, UV inhibitor and pigment. Deaerate with serrated rollers.

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12.	by weig	oth layer of ECDI ght Decabromod t. Deaerate with	iphenyl Oxide,	7.5% by weight N	akane 8084 resin Nyacol APE 1540,	containing 12% UV inhibitor and
13.	Apply 6	oth layer of 3/4 o ing 12% by weig	z. chopped stra ght Decabromo	ind mat. Saturate	e with Derakane & 7.5% by weight Nyrs.	3084 resin yacol APE 1540,
14.	Allow to	cure for 4 - 6 h	ours. Separate	from mold and t	rim to size.	
15.	Sand participation	art with 40 grit s e present.	andpaper to sm	nooth out mold m	arks and expose	any pits that
16.	Nyacol thickne	APE 1540, pigm	nent and UV inh	ibitor onto mold		% by weight for a nominal nish with 180 grit

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			Laminate Man	ufacture - Type \	180	avG
1.	Inspect m	old for defects (i ed.	.e. chips, cracks	, crazing, etc). <u>Do Not</u> proce	eed until any defec
2.	Apply mol	ld release agent((s) according to r	manufacturer's ins	tructions.	
3.	8084 resir	n containing 12%	6 by weight Deca	mat on mold surfa abromodiphenyl O with serrated rolla	xide, 7.5% by w	with Derakane veight Nyacol APE
4.	weight De	layer of ECDE (cabromodiphen) Deaerate with se	yl Oxide, 7.5% by	urate with Derakar y weight Nyacol A	ne 8084 resin co PE 1540, UV in	ontaining 12% by hibitor and
5.	12% by w	l layer of 3/4 oz. eight Decabromo Deaerate with se	odiphenyl Oxide,	mat. Saturate wit 7.5% by weight N	h Derakane 808 Nyacol APE 154	34 resin containing 40, UV inhibitor and
6.	weight De	layer of ECDE of cabromodiphension Deaerate with se	yl Oxide, 7.5% by	rate with Derakar weight Nyacol A	ne 8084 resin co PE 1540, UV in	ontaining 12% by hibitor and
7.	12% by we	layer of 3/4 oz. o eight Decabromo Deaerate with se	odiphenyl Oxide,	nat. Saturate with 7.5% by weight N	n Derakane 808 Nyacol APE 154	4 resin containing 0, UV inhibitor and
8.	weight De	layer of ECDE g cabromodipheny Deaerate with se	/l Oxide, 7.5% by	rate with Derakan weight Nyacol A	e 8084 resin co PE 1540, UV in	ntaining 12% by hibitor and
9.	12% by we	layer of 3/4 oz. o eight Decabromo Deaerate with se	odiphenyl Oxide,	nat. Saturate with 7.5% by weight N	n Derakane 808 Iyacol APE 154	4 resin containing 0, UV inhibitor and
10.	weight Ded	layer of ECDE g cabromodipheny Deaerate with se	/l Oxide, 7.5% by	rate with Derakane weight Nyacol Al	e 8084 resin co PE 1540, UV in	ntaining 12% by hibitor and
11.	12% by we	layer of 3/4 oz. o eight Decabromo Deaerate with se	odiphenyl Oxide,	nat. Saturate with 7.5% by weight N	i Derakane 808 Iyacol APE 154	4 resin containing 0, UV inhibitor and

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						7 00 30	
12.	weight L	ecabromodiph)	DE glass cloth. Sanenyl Oxide, 7.5% the serrated rollers	by weight Nyac	kane 8084 resin ol APE 1540, UV	containing 12% I inhibitor and	
13.	containir	ng 12% by wei	oz. chopped stran ght Decabromodi ent. Deaerate with	phenyl Oxide, 7.	5% by weight Ny	084 resin racol APE 1540,	
14.	weight L	ecabromodiph	DE glass cloth. Sa nenyl Oxide, 7.5% h serrated rollers	by weight Nyac	kane 8084 resin ol APE 1540, UV	containing 12% t ' inhibitor and	
15.	containir	ng 12% by wei	oz. chopped stran ght Decabromodi ent. Deaerate with	phenyl Oxide, 7.5	5% by weight Ny	084 resin acol APE 1540,	
16.	Allow to	cure for 4 - 6 h	nours. Separate f	rom mold and tri	m to size.		
17.	Sand pa be prese	rt with 40 grit s ent.	sandpaper to smo	oth out mold mai	rks and expose a	any pits that migh	
18.	Nyacol A thicknes	\PE 1540, pigr	ng 12% by weigh nent and UV inhik inimum thickness	oitor onto mold ∈us	sing a spray gun exposed pits. Fir	for a nominal	
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	ERA PS
	Laminate Manufacture - Type VI . 250 AVG
1.	Inspect mold for defects (i.e. chips, cracks, crazing, etc). Do Not proceed until any defect is corrected.
2.	Apply mold release agent(s) according to manufacturer's instructions.
3.	Apply one layer of 3/4 oz. chopped strand mat on mold surfaces. Saturate with Derakane 8084 resin containing 12% by weight Decabromodiphenyl Oxide, 7.5% by weight Nyacol APE 1540, UV inhibitor and pigment. Deaerate with serrated rollers.
4.	Apply one layer of ECDE glass cloth. Saturate with Derakane 8084 resin containing 12% by weight Decabromodiphenyl Oxide, 7.5% by weight Nyacol APE 1540, UV inhibitor and pigment. Deaerate with serrated rollers.
5.	Apply 2nd layer of 3/4 oz. chopped strand mat. Saturate with Derakane 8084 resin containing 12% by weight Decabromodiphenyl Oxide, 7.5% by weight Nyacol APE 1540, UV inhibitor and pigment. Deaerate with serrated rollers.
6.	Apply 2nd layer of ECDE glass cloth. Saturate with Derakane 8084 resin containing 12% by weight Decabromodiphenyl Oxide, 7.5% by weight Nyacol APE 1540, UV inhibitor and pigment. Deaerate with serrated rollers.
7.	Apply 3rd layer of 3/4 oz. chopped strand mat. Saturate with Derakane 8084 resin containing 12% by weight Decabromodiphenyl Oxide, 7.5% by weight Nyacol APE 1540, UV inhibitor and pigment. Deaerate with serrated rollers.
8.	Apply 3rd layer of ECDE glass cloth. Saturate with Derakane 8084 resin containing 12% by weight Decabromodiphenyl Oxide, 7.5% by weight Nyacol APE 1540, UV inhibitor and pigment. Deaerate with serrated rollers.
9.	Apply 4th layer of 3/4 oz. chopped strand mat. Saturate with Derakane 8084 resin containing 12% by weight Decabromodiphenyl Oxide, 7.5% by weight Nyacol APE 1540, UV inhibitor and pigment. Deaerate with serrated rollers.
10.	Apply 4th layer of ECDE glass cloth. Saturate with Derakane 8084 resin containing 12% by weight Decabromodiphenyl Oxide, 7.5% by weight Nyacol APE 1540, UV inhibitor and pigment. Deaerate with serrated rollers.
11.	Apply 5th layer of 3/4 oz. chopped strand mat. Saturate with Derakane 8084 resin containing 12% by weight Decabromodiphenyl Oxide, 7.5% by weight Nyacol APE 1540, UV inhibitor and pigment. Deaerate with serrated rollers.
<u> </u>	ERA PROCESS SPECIFICATION

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by weigh	t Decabromodip	henyl Oxide	, 7.5% by weight N		•
containin	ig 12% by weigh	nt Decabrom	odiphenyl Oxide, 7.	5% by weight N	
by weigh	it Decabromodip	phenyl Oxide	, 7.5% by weight N		
containin	ng 12% by weigh	nt Decabrom	odiphenyl Oxide, 7.	5% by weight N	
by weigh	ıt Decabromodip	phenyl Oxide	, 7.5% by weight N		
containin	ng 12% by weigh	nt Decabrom	odiphenyl Oxide, 7.	5% by weight N	
Allow to	cure for 4 - 6 ho	ours. Separa	te from mold and tr	im to size.	
		indpaper to s	mooth out mold ma	arks and expose	any pits that
Nyacol A thicknes	NPE 1540, pigmes of 10 mils, mir	ent and UV i	nhibitor onto mold 🖁	ising a spray gur	n for a nominal
	Apply 5th by weigh pigment. Apply 6th containing UV inhib Apply 7th containing UV inhib Apply 7th by weigh pigment. Apply 8th containing UV inhib Apply 8th containing UV inhib Allow to Sand part might be Apply general Apply	Apply 5th layer of ECDE by weight Decabromodip pigment. Deaerate with Apply 6th layer of 3/4 oz containing 12% by weight UV inhibitor and pigment. Apply 6th layer of ECDE by weight Decabromodip pigment. Deaerate with Apply 7th layer of 3/4 oz containing 12% by weight UV inhibitor and pigment. Apply 7th layer of ECDE by weight Decabromodip pigment. Deaerate with Apply 8th layer of 5/4 oz containing 12% by weight UV inhibitor and pigment. Apply 8th layer of 3/4 oz containing 12% by weight UV inhibitor and pigment. Allow to cure for 4 - 6 how Sand part with 40 grit samight be present. Apply gel-coat containing Nyacol APE 1540, pigment.	Apply 5th layer of ECDE glass cloth. by weight Decabromodiphenyl Oxide pigment. Deaerate with serrated rolled Apply 6th layer of 3/4 oz. chopped st containing 12% by weight Decabrom UV inhibitor and pigment. Deaerate of Apply 6th layer of ECDE glass cloth. by weight Decabromodiphenyl Oxide pigment. Deaerate with serrated rolled Apply 7th layer of 3/4 oz. chopped st containing 12% by weight Decabrom UV inhibitor and pigment. Deaerate of Apply 7th layer of ECDE glass cloth. by weight Decabromodiphenyl Oxide pigment. Deaerate with serrated rolled Apply 8th layer of 3/4 oz. chopped st containing 12% by weight Decabrom UV inhibitor and pigment. Deaerate of Allow to cure for 4 - 6 hours. Separate Sand part with 40 grit sandpaper to semight be present. Apply gel-coat containing 12% by we Nyacol APE 1540, pigment and UV in thickness of 10 mils, minimum thickness	Apply 5th layer of ECDE glass cloth. Saturate with Dera by weight Decabromodiphenyl Oxide, 7.5% by weight Nipigment. Deaerate with serrated rollers. Apply 6th layer of 3/4 oz. chopped strand mat. Saturate containing 12% by weight Decabromodiphenyl Oxide, 7. UV inhibitor and pigment. Deaerate with serrated rollers. Apply 6th layer of ECDE glass cloth. Saturate with Dera by weight Decabromodiphenyl Oxide, 7.5% by weight Nipigment. Deaerate with serrated rollers. Apply 7th layer of 3/4 oz. chopped strand mat. Saturate containing 12% by weight Decabromodiphenyl Oxide, 7. UV inhibitor and pigment. Deaerate with serrated rollers. Apply 7th layer of ECDE glass cloth. Saturate with Dera by weight Decabromodiphenyl Oxide, 7.5% by weight Nipigment. Deaerate with serrated rollers. Apply 8th layer of 3/4 oz. chopped strand mat. Saturate containing 12% by weight Decabromodiphenyl Oxide, 7. UV inhibitor and pigment. Deaerate with serrated rollers. Apply 8th layer of 3/4 oz. chopped strand mat. Saturate containing 12% by weight Decabromodiphenyl Oxide, 7. UV inhibitor and pigment. Deaerate with serrated rollers. Allow to cure for 4 - 6 hours. Separate from mold and trest Sand part with 40 grit sandpaper to smooth out mold material process of 10 mils, minimum thickness of 6 mils, to fill thickness of 10 mils, minimum thickness of 6 mils, to fill	Apply 5th layer of ECDE glass cloth. Saturate with Derakane 8084 resir by weight Decabromodiphenyl Oxide, 7.5% by weight Nyacol APE 1540 pigment. Deaerate with serrated rollers. Apply 6th layer of 3/4 oz. chopped strand mat. Saturate with Derakane a containing 12% by weight Decabromodiphenyl Oxide, 7.5% by weight Ny UV inhibitor and pigment. Deaerate with serrated rollers. Apply 6th layer of ECDE glass cloth. Saturate with Derakane 8084 resir by weight Decabromodiphenyl Oxide, 7.5% by weight Nyacol APE 1540 pigment. Deaerate with serrated rollers. Apply 7th layer of 3/4 oz. chopped strand mat. Saturate with Derakane a containing 12% by weight Decabromodiphenyl Oxide, 7.5% by weight Nyacol APE 1540 pigment. Deaerate with serrated rollers. Apply 7th layer of ECDE glass cloth. Saturate with Derakane 8084 resir by weight Decabromodiphenyl Oxide, 7.5% by weight Nyacol APE 1540 pigment. Deaerate with serrated rollers. Apply 8th layer of 3/4 oz. chopped strand mat. Saturate with Derakane containing 12% by weight Decabromodiphenyl Oxide, 7.5% by weight Nyacol APE 1540 pigment. Deaerate with serrated rollers. Allow to cure for 4 - 6 hours. Separate from mold and trim to size. Sand part with 40 grit sandpaper to smooth out mold marks and expose might be present. Apply gel-coat containing 12% by weight Decabromodiphenyl Oxide, 7.5 Nyacol APE 1540, pigment and UV inhibitor onto mold tesing a spray gut thickness of 10 mils, minimum thickness of 6 mils to fill exposed pits. Filestone in the series of the seri

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LAP JOINTS

The following instructions are used to permanently join laminate structures together.

Lap Joints:

- 1. Scuff areas to be joined with 36 grit grinding disc.
- 2. Apply one layer of 1 1/2 oz. mat. Saturate with 8084 resin.
- 3. Apply 2nd layer of 1 1/2 oz. mat. Saturate with 8084 resin.
- 4. Install mating component.
- 5. Apply pressure to squeeze excess resin from lap joint.
- 6. Allow a minimum of 2 hours to exotherm.

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INSPECTION

It is in purpose of the inspection to verify that each part has been fabricated in accordance with and meets the requirements of this specification.

RESPONSIBILITIES:

It is the responsibility of the fabricator to make available to Era Aviation or his authorized representative any or all of the following:

Records:

Records pertaining to the part (s) being purchased shall be supplied when requested. These may include:

Materials Specifications
Equipment drawings or mold jig
Materials test results
Dimensional verification reports

Dimensional verification reports Rework and repair reports.

MATERIALS:

Raw materials used for laminates shall be virgin materials and shall be free of contaminants as described in pgs. 2 and 3.

FABRICATED PARTS:

The part to be inspected shall be properly located and positioned, and shall be in condition to permit safe and thorough inspection. Reasonable means shall be provided to permit the inspector to visually examine the entire inner and outer surfaces of the part.

Allowable defects are listed on page 16.

The following inspection tools and equipment shall be made available for use by the inspector.

Barcol hardness tester
Acetone squeeze bottle with acetone
Extension cord with ground fault switch
A vapor tight inspection light
Thickness gauge

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INSPECTION

TEST OF FINISHED PARTS:

The following basic tests shall be included as a minimum in the Acceptance Inspection.

Barcol Hardness Test - A test of resin cure shall be made in accordance with ASTM D2583. Take 10 readings, discard highest and lowest, average the remaining readings. Minimum acceptable average reading is 30.

Surface Cure Test - An acetone test shall be used to detect surface inhibition on surfaces exposed to air during cure. The procedure that shall be used is the following: rub a few drops of acetone on the surface and check for tackiness after the acetone has evaporated. Persistent tackiness indicates incomplete cure.

Dimensions - The inspector shall be provided with copies of all approved drawings or mold jigs.

OTHER APPLICABLE DOCUMENTS:

ASTM Standards

C 581-74-Test Method for Chemical Resistance of Thermosetting Resins Used in Glass Fiber Reinforced Structures.

D 638-77a-Test Method for Tensile Properties of Plastics.

D 790-71-Test Methods of Flexural Properties of Plastics and Electrical Insulating Materials.

D 883-78a-Definitions of Terms Relating to Plastics.

D 2583-75-Test Method for Indentation Hardness of Rigid Plastics by Means of a Barcol Impressor.

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ALLOWABLE DEFECTS

Defect	Surface Inspected
Cracks (through part)	None
Crazing (fine surface cracks)	Max dimension 1/2 in., max density 5 per soft. min 2 in apart
Blisters (rounded elevations of the laminate surface over bubbles)	Max 1/4 in., dia X 1/8 in. high, max 1 per sq ft. min 2 in apart
Wrinkles and solid blisters	Max deviation, 20% of wall thickness but no exceeding 1/8 in.
Pits (craters in the laminate surface)	Max dimensions, 1/8 in dia X 1/16 in deep. max density 10 per sq. ft.
Surface porosity (pinholes or pores in the laminate)	Max dimensions, 1/16 in dia X 1/16 in deep max density 10 per sq. ft.
Chips	Max dimension of break, 1/4 in. and thickness no greater than 20 percent of wall thickness max density 1 per sq ft.
Dry spot (nonwetted reinforcing)	Max dimension, 2 sq in. per sq ft
Entrapped air (bubbles or voids in the laminate)	1/8 in. max dia. 4 per sq. in. max density; 1/16 in. max dia. 10 per sq. in. max density
Exposed Glass	None
Burned Areas	None
Exposure of cut edges	None
Scratches	Max length 1 in. max depth 0.010 in.
Foreign Matter	1/16 in. dia. max density 1 per sq ft.

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	FIBERGLASS CHOPE	PED STRAND MAT						
1.0	Scope							
1.1	The scope of these procedures is to descri parameters which characterize fiberglass s	be the visual, physic urfacing mat used by	al and mechanical y the fabricator.					
2.0	Definitions							
2.1	Chopped Strand Mat - Chopped strand ma which are held together in mat form using a	Chopped Strand Mat - Chopped strand mat is made from randomly oriented glass strands which are held together in mat form using a binder. Each strand contains a sizing.						
3.0	Requirements							
3.1	Visual Requirements - Each roll of chopped consistent in color, texture and appearance fluffy masses, dirt spots or other foreign mathan 2" in diameter, clumps of strands and of defects.	e. It shall be free from aterial; water spots, k	m surface irregularities, knots, binder spots larger					
3.2	Physical Requirements							
3.2.1	Weight - The square foot weight of the maused. All specimens shall fall within the rar	t shall be measured nge specified for the	for each carton of mat product.					
3.3	Packaging Requirement - Packaging shall and that the package is free from damage to	oe visually inspected that may render the i	t to assure proper labelin mat unusable.					
3.3.1		The mat shall be packaged in an unbroken carton as shipped from the mat manufacturer's factory. The mat used shall not be repackaged in the distribution of the mat after the manufacturer has shipped the mat.						
3.4	Documentation - It is the responsibility of the results of all material testing. This informate	ne fabricator to main ion shall show at a n	itain records showing the ninimum, the following:					
	 a. Form of material b. Manufacturer c. Manufacturer's product description incompleted d. Manufacturer's product code e. Production date, if available, or production date, if available, or production property measured and value recorded * Visual inspection * Width * Thickness * Packaging g. Job number (Internal Fabricator Continuation number) 	ction code on carton ed	1					

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			FIBERGLA	SS EDGE GLASS		
1.0	Scope					
1.1	The scope of parameters w	f these proce which charac	edures is to de terize ECDE (escribe the visual, glass used by the	physical and m fabricator.	echanical
2.0	Definitions					
2.1	Fiberglass E0	CDE glass -	Glass fiber ro	vings woven into a	a heavy weight	fabric.
2.2	Wrap ends - The rovings which run in the longitudinal direction of the fabric, i.e., along th roll length of the fabric.					
2.3	Fill Picks - The rovings which run in the transverse direction of the fabric, i.e., across the roll length of the fabric.					
2.4	Leno Strands - A pair of warp ends at each edge of the woven fabric. One leno wrap end is always over each fill pick while the other Leno wrap end is always under the fill pick. The Leno strands define the edges of the woven field and serve to stabilize the edges of the fabric.					
3.0	Requirements	s				
3.1	Visual Requir	rements				
3.1.1	Dirt Spots - D dirt spots (1/1 free of dirt sp	16" to 3/4" in	diameter) pe	er, dirt, grease spo r 100 lineal feet sh eter.	ots, etc The a nall be 6 or less	verage number o . All rolls shall be
3.1.2	Warp Ends feet.	All rolls shall	l be free of mi	ssing warp ends f	or more than tw	o consecutive
3.1.3	than eleven n	nissing picks	s, either indivi	ecutive missing pi dual picks or any c secutive 100 linea	combination of i	of five, or more Individual and
3.1.4	Fuzz Clumps free of fuzz cl	and Loops - lumps or loo	The product ps exceeding	is designed to extone inch in height	nibit proper layo from the surfa	lown and shall be ce.
3.2	Physical Req	luirements				

3.2.1 Thickness - The thickness of the mat in each roll of ECDE glass shall be measured.

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3.3	and in	at the package is	free from dama	nall be visually insp age that may rende	r the ECDE gla	ss unusable.
3.3.1	manut	acturer's factory.	The ECDE glas	a unbroken carton ss used shall not be rer has shipped the	e repackaged is	n the n the distribution
3.4	Docum results	nentation - It is the of all material tes	e responsibility of sting. This infor	of the fabricator to mation shall show	maintain record at a minimum,	ds showing the the following:
	b c d e f	Manufacturer's p	roduct code if available, or p ed and value red pection rnal Fabricator (Control Number)		t)